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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/586,530	05/31/00	NI	T LAM1P111/P06

IM52/0328  
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EXAMINER

PEREZ RAMOS, V

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 03/28/01

*3*

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

<b>Office Action Summary</b>	Application No. 09/586,530	Applicant(s) NI ET AL.	
	Examiner Vanessa Perez-Ramos	Art Unit 1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- |   |  |
|---|--|
| 15) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                  | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s) ____.   |
| 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 20) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In both claims, "estimating the etch end point", and detecting based on the "estimated etchpoint" is vague and indefinite, as an "estimated" value is a subjective measure.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Litvak (U.S. 5,499,733) in view of Yu et al. (U.S. 5,131,752).

In regard to claims 1 and 6-7, Litvak discloses a method for determining an etchpoint, comprising: directing radiant energy at two or more wavelengths onto the layer to be etched (col. 8, lines 18-20); detecting the last intensity maximum reflected at a first wavelength (col. 8,

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lines 21-30) and an intensity maximum reflected after the first intensity maximum , and at a second wavelength (col. 12, lines 61-67 and col. 13, lines 1-6).

Litvak does not disclose detecting the intensities in relation to "estimated endpoints".

Yu discloses that it is well known in the art to calculate an approximate endpoint, and that this calculated endpoint data is then used to determine the actual endpoint of a process.

It is the Examiner's position that it would have been obvious to one skilled in the art at the time of the invention to modify Litvak by determining the maximum intensities of two different wavelengths in relation to an "estimated endpoint", as per Yu, because Yu discloses that this is a well known procedure in the art of semiconductor manufacturing that assists in trying to determine a precise endpoint of a process.

In regard to claim 2, the variation of process parameters such as the wavelength would have been obvious to one skilled in the art at the time of the invention with the anticipation of determining the best process mode.

In regard to claim 3, Litvak discloses that at least two interference maxima occur (col. 8, lines 19-20).

In regard to claims 4-5, Litvak discloses the use of transparent materials (col. 7, lines 48-50).

In regard to claims 8-14, these claims differ from claims 1-7 above by utilizing three or more wavelengths. Litvak discloses a process where "various" wavelengths are detected (col. 12, lines 63-64), which reads on Applicant's "three or more".

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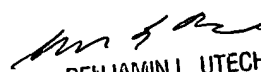
5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Perez-Ramos whose telephone number is 703-306-5510. The examiner can normally be reached on Mon-Fri 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech can be reached on 703-308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7718 for regular communications and 703-305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5665.

Vanessa Perez-Ramos  
Examiner  
Art Unit 1765

VPR  
March 26, 2001

  
BENJAMIN L. UTECH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700